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The Sense of Incompleteness as a Motivator of Obsessive-Compulsive Symptoms: An Empirical Analysis of Concepts and Correlates

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Abstract

Contemporary models of obsessive-compulsive disorder emphasize the importance of harm avoidance (HA) and related dysfunctional beliefs as motivators of obsessive-compulsive (OC) symptoms. Recently, there has been a resurgence of interest in Janet's (1908) concept of incompleteness (INC) as another potentially important motivator. Contemporary investigators define INC as the sense that one's actions, intentions, or experiences have not been properly achieved. Janet defined INC more broadly to include alexithymia, depersonalization, derealization, and impaired psychological mindedness. We conducted two studies to address four issues: (a) the clinical correlates of INC; (b) whether INC and HA are distinguishable constructs; (c) whether INC predicts OC symptoms after controlling for HA; and (d) the relative merits of broad versus narrow conceptualizations of INC. Study 1 was a meta-analysis of the clinical correlates of narrowly defined INC (16 studies, *N*=5,940). INC was correlated with all types of OC symptoms, and was more strongly correlated with OC symptoms than with general distress. Study 2 (*N*=534 nonclinical participants) showed that: (a) INC and HA were strongly correlated but factor analytically distinguishable; (b) INC statistically predicted all types of OC symptoms even after controlling for HA; and (c) narrow INC was most strongly correlated with OC symptoms whereas broad INC was most strongly correlated with general distress. Although the findings are limited by being correlational in nature, they support the hypothesis that INC, especially in its narrow form, is a motivator of OC symptoms.

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Supplementary material (Appendices A & B)

Keywords

Obsessions; compulsions; obsessive-compulsive disorder; “just right” experiences; incompleteness; harm avoidance

Introduction

Obsessive-compulsive disorder (OCD) is a common, etiologically complex, and often debilitating disorder that is characterized by recurrent and distressing obsessions and compulsions (American Psychiatric Association, 2013). Obsessive-compulsive (OC) symptoms are prevalent in the general population and are similar to symptoms seen in OCD (Clark, 2004). Further, clinical and nonclinical OC symptoms exist on a continuum (Haslam et al., 2005), suggesting that studies of OC symptoms from nonclinical samples, as in portions of the present investigation, are relevant for understanding symptoms of OCD.

Cognitive-behavioral models propose that OC symptoms are motivated by harm avoidance (HA) and its associated features. The latter include threat-related dysfunctional beliefs (e.g., beliefs that threat is ever-present, beliefs that uncertainty is intolerable, beliefs that unwanted intrusive thoughts are dangerous, and beliefs that one is personally responsible for anticipating and preventing harm; Frost & Steketee, 2002). High levels of HA are characterized by excessive worry about threat, strong efforts to avoid threat (i.e., excessive cautiousness), fearfulness, and fear of uncertainty (Cloninger, Svrakic, & Przybeck, 1993).

The importance of HA as a motivational factor for OC symptoms is emphasized in DSM-5; compulsions are defined as actions that are performed to reduce distress or to avoid feared outcomes (American Psychiatric Association, 2013). Nevertheless, HA is insufficient to explain OC symptoms. Elevated HA is associated with many different clinical conditions, including various symptoms of anxiety and mood disorders, and traits of borderline personality (e.g., Cloninger, Zohar, Hirschmann, & Dahan, 2012; Mertol & Alkin, 2012; Wu et al., 2012). If HA is associated with so many different clinical conditions, then HA per se is insufficient for explaining why a person develops OC symptoms instead of some other clinical condition. Accordingly, motivational factors other than HA may be important for understanding OC symptoms.

A small but growing body of research suggests that incompleteness (INC) may be important for understanding OC symptoms. Contemporary investigators define INC as the sense or feeling that one’s actions, intentions, or experiences have not been properly achieved; that is, the experience that something is not “just right” (e.g., the feeling that both shoelaces are not tied to precisely the same tension or that a door lock has not been properly locked) (Coles, Frost, Heimberg, & Rhéaume, 2003; Rasmussen & Eisen, 1992; Summerfeldt, 2004). Most (> 80%) people suffering from OC symptoms have experienced INC (Leckman et al., 1994/1995). INC is considered to be a perceptually tinged phenomenon, which is different from perfectionistic dysfunctional beliefs (Coles et al., 2003). INC is not included in contemporary cognitive-behavioral models, which emphasize dysfunctional beliefs and feared consequences.

In his pioneering work, Janet (1908) defined INC more broadly than the concept is defined by current investigators. Janet construed INC as encompassing a range of experiences, which included incompleteness concerning one’s sense of self, thoughts, emotions, actions, and environment. Janet’s conceptualization encompasses concepts that today are known as alexithymia, depersonalization, derealization, and impaired psychological mindedness. Janet’s pioneering work has been largely inaccessible to contemporary investigators because

of a lack of a complete English translation of his writings on OC phenomena. As Pitman (1984) noted, "Pierre Janet's *Les obsessions et la psychasthénie* … still stands as the most authoritative work on obsessional and related disorders yet written" (p. 291). Pitman (1987) further observed that after more than a century, Janet's observations "are as timely now as when they were made" (p. 226). Recently, Janet's *Les obsessions et la psychasthénie* has been translated to English (Adamowicz, trans., in press), thereby providing English-speaking researchers with an unprecedented opportunity to empirically evaluate Janet's broad conceptualization of INC and to compare it with today's narrower conceptualization.

The relative merits of the broad versus narrow conceptualizations of INC for understanding OC symptoms have yet to be investigated. It is unclear, for example, whether the conceptualizations of INC differ in their specificity to OC symptoms. In order to understand why a person develops OC symptoms, as opposed to other emotional problems, it is necessary to have an explanatory construct that more strongly predicts OC symptoms than it predicts general distress. The latter is a marker of symptoms of emotional disorders because general distress is involved in all of these phenomena (Meehl, 1990).

The relationship between INC and HA also needs to be clarified. Summerfelt (2004) proposed that INC and HA are *orthogonal* (uncorrelated) dimensions that influence many if not all OC symptoms. The only previous study to investigate this issue found that measures of HA and INC were strongly correlated (r = .76) but factor analytically distinguishable (Pietrefesa & Coles, 2008). In order to evaluate the merits of INC, we sought to further investigate whether it is factor analytically distinguishable from HA, and to determine whether INC predicts OC symptoms after controlling for (i.e., partialling out) the effects of HA.

A further issue concerns the relationship between INC and specific types of OC symptoms and general distress. Summerfelt (2004) proposed that INC influences many if not all OC symptoms and that INC "is unique to obsessive-compulsive phenomena" (p. 1464). This suggests that INC should be more strongly correlated with OC symptoms than with general distress. Compulsions may be more strongly correlated with INC than with HA, because INC purportedly motivates repetitive behaviors until a sense of completion is attained (Summerfeldt, 2007). Obsessions may be more strongly correlated with HA than with INC, because HA is likely to lead the person to become excessively alarmed about intrusive thoughts, leading to maladaptive coping behaviors that increase the frequency of the unwanted thoughts (Ecker & Gönner, 2008).

We conducted two empirical studies to investigate the nature of INC and its relations with HA, OC symptoms, and general distress. Study 1 was a meta-analysis of the correlations of INC (narrowly defined) and HA with measures of OC symptoms and general distress. The narrow conceptualization of INC was investigated because, until the present study, no contemporary investigators have studied Janet's broad conceptualization of INC. A primary aim of the meta-analysis was to investigate whether INC and HA differ in their clinical correlates. Study 2 appears to be the first study to compare the broad and narrow conceptualizations of INC in terms of the strength of relationships with OC symptoms and general distress. Study 2 also sought to determine whether INC and HA are factor analytically distinct and to determine whether INC statistically predicts OC symptoms after controlling for HA and dysfunctional beliefs associated with OC symptoms (i.e., beliefs related to HA and perfectionism).

The two studies were correlational, not causal, in nature. However, causation implies correlation. If INC plays a causal role in OC symptoms, then INC should be correlated with such symptoms, even after controlling for HA and dysfunctional beliefs. The present study

is intended to determine whether there is sufficient evidence to pursue experimental investigations of the effects of INC in people meeting diagnostic criteria for OCD. Given the number of analyses conducted in Studies 1 and 2, α was set at .01 in order to reduce Type I error without unduly inflating Type II error (see Appendix A for details on the rationale).

Study 1

The meta-analysis sought to answer four questions: (a) How strongly is INC correlated with HA? Are they orthogonal (uncorrelated), as proposed by Summerfeldt (2004)? Cohen's (1988) criteria were used to classify the size of correlations (small = .10–.29, medium = .30–.49, large = .50 and higher). (b) Do INC and HA show signs of specificity? That is, are they more strongly correlated with OC symptoms than with general distress? (c) Is HA more strongly correlated with obsessions than with compulsions? (d) Is INC more strongly correlated with compulsions than obsessions? We tested these conjectures by comparing obsessions with prototypic compulsions in terms of their correlations with INC and HA. Prototypic compulsions were defined as washing, checking, ordering, and neutralizing (cognitive) rituals. Hoarding phenomena were not included in the comparisons of the correlations of obsessions versus compulsions. This is because hoarding phenomena, which consist of excessive acquisition and difficulty discarding objects, are not prototypic compulsions (Pertusa et al., 2010). Hoarding can be a symptom of OCD, but can be a disorder in its own right if hoarding is the primary presenting problem (American Psychiatric Association, 2013).

Method

Study selection—Relevant studies were identified by systematically searching, up to November 9, 2013, MEDLINE, PsychINFO, and EMBASE. Search terms were *obsess** combined with (*"just right"* or *"incomplete*"* or *"sensory phenomena"* or *"harm avoidance"*). The asterisk denotes the use of a wild card. Articles in all languages were considered for inclusion, along with unpublished dissertations. Articles cited in all identified articles, and references cited in relevant review articles and book chapters, were also examined. Articles were included if they reported correlations, based on adult samples, between measures of INC and/or HA, and measures of OC symptoms, anxiety, or depression.*** Supplementary information and other unpublished data were obtained by contacting the authors of the empirical papers.

Data from 16 samples (*N*=5,940 participants) were included in the meta-analysis (Chik, Calamari, Rector, & Rieman, 2010; Coles et al. (2003, Studies 1 and 2, based on different samples); Coles, Heimberg, Frost, & Steketee, 2005; Cougle, Fitch, Jacobson, & Lee, 2013 (Study 2); Cougle, Goetz, Fitch, & Hawkins, 2011; Cruz-Fuentes, Blas, Gonzalez, Camarena, & Nicolini, 2004; Ecker & Gönner (2008, 2011 with each study reporting different correlational data); Ghisi, Chiri, Marchetti, Sanavio, & Sica, 2010; Neal & Cavanna, 2013; Olatunji, Unoka, Beran, David, & Armstrong, 2009; Pietrefesa & Coles, 2008; Sica et al., 2013; Sica, Caudek, Chiri, Ghisi, & Marchetti, 2012; Sparrow, 2009; Summerfeldt, 2006). The correlations extracted from these studies along with other details on included and excluded samples appear in Appendices A and B.

Measures—The meta-analysis was based on the two most widely used measures of INC, the 10-item Coles et al. (2003) "Not Just Right Experiences" scale (designated as INC-C for the purpose of the present study) and the trait version of the Summerfeldt (2006; Summerfeldt, Kloosterman, Parker, Antony, & Swinson, 2001) INC scale (designated here as INC-S). HA was assessed by either the Summerfeldt et al. (2001) or Cloninger et al. (1993) HA scales. OC symptom measures were either measures of global symptom severity scores or scores on the following symptom subtypes: checking, hoarding, neutralizing,

obsessing, ordering, and washing. We examined these specific types of symptoms because they were ones most commonly examined in relationship to INC and HA. Most studies included in the meta-analysis measured OC symptoms with either the original or revised Obsessive-Compulsive Inventory (Foa et al., 2002; Foa, Kozak, Salkovskis, Coles, & Amir, 1998), and most studies measured general anxiety and depression with the Beck Anxiety and Depression Inventories (Beck & Steer, 1987, 1993). For details on the measures and their psychometric properties, see Appendices A and B.

Statistical procedures—Meta-analysis of correlations was conducted using the *Comprehensive Meta-Analysis* program, version 2.2050 (Borenstein, Hedges, Higgins, & Rothstein, 2009a). Correlations from individual studies were weighted according to the inverse variance method, in which more precise studies (i.e., those with larger sample sizes) received greater weighting (Borenstein, Hedges, Higgins, & Rothstein, 2009b). Random effects modeling to compute mean correlations was used because it was unclear whether the true effect size was the same across all studies or subgroups. Mixed effects modeling was used to test differences between correlations.

Results

Preliminary analyses—Of the 16 studies included in the meta-analysis, three were based on OCD samples, one based based on patients with Tourette syndrome, and the remainder were based on nonclinical individuals (NC; e.g., college students). A screen for outlying correlations ($Z > 3.00$) was conducted for each of the INC and HA scales within each sample (NC vs. clinical). No outliers were detected.

The magnitude of correlations of the INC and HA measures with OC symptoms and with general distresss did not significantly differ across the clinical and NC samples; $\chi^2(df = 1) = 2.56$, $p > .10$. Accordingly, NC and nonclinical samples were combined in the meta-analysis. The two HA scales did not differ in the size of their correlations with OC symptoms and general distress; $\chi^2(df = 1) = 0.01$, $p > .10$. Therefore, both scales were combined into a single HA variable in the meta-analysis. The two INC scales significantly differed in the magnitude of their correlations with OC symptoms and general distress, with correlations for INC-S ($r = .46$) tending to be larger than INC-C ($r = .37$); $\chi^2(df = 1) = 5.49$, $p = .019$. Although the absolute difference between these correlations is small, the INC scales were meta-analyzed separately.

Mean correlations—The two INC scales were correlated .49 ($p < .001$). The correlations of INC-S and INC-C with HA were, respectively, .63 and .37 (ps < .001). The mean correlations with OC total symptom scores were as follows: INC-S .67, INC-C .48, HA .43 (ps < .001). Table 1 presents the correlations with specific OC symptoms and with indices of general distress. All correlations were significant (ps < .001).

INC tended to be more more strongly correlated with OC symptoms than with general distress. For INC-C the difference between the correlations with OC symptoms versus correlations with general distress was statistically significant; rs = .38 vs. .29; $\chi^2(df = 1) = 6.71$, $p < .001$. For INC-S there was a trend in the same direction; rs = .50 vs. .35; $\chi^2(df = 1) = 5.95$, $p = .015$. For HA there was no significant difference in the correlations with OC symptoms versus general distress; rs = .43 vs. .38; $\chi^2(df = 1) = 0.70$, $p > .10$. For both INC-C and INC-S there was no significant difference in their correlations with obsessions versus protypic compulsions (i.e., all compulsions except for hoarding; ps > .10). There was a trend for HA to be more strongly correlated with obsessions versus protypic compulsions; mean rs = .57 vs. .42; $\chi^2(df = 1) = 4.20$, $p = .040$.

Discussion

INC and HA were significantly correlated with one another. Based on Cohen's (1988) criteria, INC and HA had medium-to-large correlations with one another. INC and HA were significantly correlated with OC symptoms and with measures of general distress, with most correlations being in the medium range. INC was more strongly correlated with OC symptoms than with general distress. INC and HA did not differ in the strength of their correlations with prototypic compulsions.

Study 2

The aims of this study were: (a) to attempt to replicate Pietrefesa and Coles' (2008) finding that INC and HA are factor analytically distinct but highly correlated (as measured by the Summerfeldt scales); (b) to determine whether INC statistically predicts OC symptoms after controlling for the effects of HA or OC-related dysfunctional beliefs (i.e., incremental predictive power), and (c) to compare the narrow and broad conceptualizations of INC in terms of their specificity with OC symptoms and general distress.

Method

Participants—A nonclinical sample of 534 English-speaking adults participated in this study. The mean age was 33 years (SD = 12 years; range 18–82 years) and 58% were female. Most (81%) lived in the United States, most (73%) were Caucasian, and almost all (99%) had at least a high school level of education. The remaining 1% had completed at least some high school. Mean (and SD) scores on the revised Obsessive-Compulsive Inventory (OCI-R) were as follows: Checking 3.0 (2.8), hoarding 3.1 (2.7), neutralizing 2.2 (2.9), obsessing 2.8 (2.9), ordering 4.0 (3.3), washing 2.5 (2.9), total score 17.7 (14.2). Mean (SD) scores on the INC-C, INC-S, and HA scales were, respectively, 3.4 (2.4), 25.5 (7.8), and 23.8 (8.3).

Measures—The following measures were administered. Details of the scales and their psychometric properties appear in Appendix A. INC-C was measured by the *10-item Not Just Right Experiences Questionnaire Revised* (Coles et al., 2003). HA and INC-S were measured by the *Obsessive-Compulsive Core Dimensions Questionnaire - Trait Version* (Summerfeldt et al., 2001). OC-related beliefs were measured by the *Obsessive Beliefs Questionnaire-44* (Obsessive Compulsive Cognitions Working Group, 2005), which assessed three empirically derived domains of dysfunctional beliefs: Responsibility/threat estimation, perfectionism/tolerance for uncertainty, and importance/control of thoughts. OC symptoms were assessed with the *Obsessive Compulsive Inventory Revised* (OCI-R; Foa et al., 2002). To complete the assessment of broad INC, participants completed the *Toronto Alexithymia Scale-20* (Bagby, Parker, & Taylor, 1994), the Derealization/Depersonalization subscale of the *Dissociative Experiences Scale II* (Carlson et al., 1993; Stockdale, Gridley, Balogh, & Holtgraves, 2002), and the *Balanced Index of Psychological Mindedness* (Nyklicek & Denollet, 2009). Proneness to general distress (negative emotionality) was assessed by the *Positive and Negative Affect Scale* (Watson, Clark, & Tellegen, 1988).

Procedure—Participants were recruited via the Mechanical Turk program operated by Amazon.com. The Mechanical Turk is a well-established crowd-sourcing platform frequently used for behavioral research (Mason & Suri, 2012). It has been found to be a valid and acceptable means for conducting psychopathology survey research (Shapiro, Chandler, & Mueller, 2013). Participants were included if they provided informed consent and were proficient in English. Exclusion criteria included failure to complete the measures and abnormally elevated scores (3 or more deviant responses) on the validity scale of the Psychopathic Personality Inventory (Cuttler, Sirois-Delisle, Alcolado, Radomsky, & Taylor,

2013; Lilienfeld & Andrews, 1996). The items of this scale were randomly dispersed through the full battery of measures. Further details of the participants and participant recruitment and screening procedures appear in Appendix A.

Statistical Procedures—Scores on all scales were modeled as latent variables using Robust Maximum Likelihood (RML) with MPlus version 6.1. This method was also used for the confirmatory factor analysis of the Summerfeldt scales (INC-S and HA scales). Factor scores for each latent variable were computed via MPlus for subsequent analyses. SPSS version 17.0.2 was used to compute the correlations among latent variables and to run the regression analyses. The methods described by Meng, Rosenthal, and Rubin (1992) were used to test whether sets of correlations (e.g., a pair of correlations or one set of correlations vs. a given correlation) significantly differed from one another. Mean *r*s were computed via Fisher's transformation.

Results

Confirmatory factor analysis of INC-S and HA—A previous confirmatory factor analysis revealed that INC-S and HA were strongly correlated ($r = .76$), but the best-fitting model was a 2-factor solution (Pietrefesa & Coles, 2008). Given the high correlation, we compared a 1-factor model (i.e., all items loading on a single factor) and 2-factor model (INC-S and HA forming separate factors), using information criteria to determine the best-fitting model. Here, the best-fitting model was that with the smallest value on the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the sample-size adjusted BIC. The 2-factor model yielded a better fit on all three information criteria. The 1- versus 2-factor results were as follows: AIC 25,074.28 versus 24,879.24; BIC 25,502.31 versus 25,311.56; adjusted BIC 25,184.88 versus 24,990.95. In absolute terms, based on the Hu and Bentler (1999) criteria, the 2-factor model was a good fit to the data on three of four goodness-of-fit indices. According to Hu and Bentler, good fit is indicated by values on the following indices: SRMR ≤ .08, RMSEA ≤ .06, CFI ≥ .95, and TLI ≥ .95. For the 2-factor model, the values were as follows: SRMR = .06, RMSEA = .08 (99% confidence interval: .07–.09), CFI = .98, and TLI = .98.

INC-HA correlations—The two INC scales were correlated .49, and the correlations of INC-S and INC-C with HA were respectively, .93 and .45 (*p*s < .001). These findings are similar to the pattern of results found in Study 1.

OC correlates of HA—Table 2 shows that HA was significantly correlated with all OC symptoms and with negative emotionality (general distress). Unlike Study 1, HA was significantly more strongly correlated with OC symptoms (mean $r = .59$) than with negative emotionality ($r = .51$); $Z = 3.78$, $p < .001$. Also unlike Study 1, HA was no more strongly correlated with obsessions ($r = .65$) than with prototypic compulsions (mean $r = .58$); $Z = 2.44$, $p > .10$.

Correlates of INC, controlling for HA and dysfunctional beliefs—The focus of this study was whether INC makes an incremental contribution to predicting OC symptoms, beyond any effects attributable to HA or dsysfunctional beliefs. Accordingly, the latter two variables were partialled out. Table 2 shows the correlations of HA, OC-related dysfunctional beliefs, and INC with measures of OC symptoms and general distress. The INC measures were residualized, in which the effects of either HA or dysfunctional beliefs were partialled out. Table 2 shows that the residualized INC measures were all significantly correlated with OC symptoms. This is noteworthy given that INC and HA were strongly correlated. Regression analyses in Appendix A revealed the same pattern of results and are

not presented here because of redundancy. Tolerance values were > .24, indicating that multicollinearity was not a problem for the regression analyses (details in Appendix A).

Broad versus narrow INC—Contrasts between sets of correlations were conducted, using the methods described by Meng et al. (1992). For each form of INC, we tested whether the correlations with the six types of OC symptoms differed from the correlation with negative emotionality, after controlling for the effects of either HA or OC-related dysfunctional beliefs. The results appear in Table 3. Here it can be seen that narrowly defined INC tended to be more strongly correlated with OC symptoms than with general distress. The opposite pattern was obtained for broad INC, which tended to be more strongly correlated with general distress than with OC symptoms. Mixed results were found regarding INC correlations with prototypic compulsions compared to correlations with obsessions. These findings are reported in Table 3.

Discussion

INC and HA were highly correlated yet INC predicted OC symptoms even after controlling for the effects of HA. Although the findings do not support the view that INC is unique and unrelated to HA, the results show that INC predicts OC symptoms even after controlling for HA and after controlling for HA-related dysfunctional beliefs and perfectionistic beliefs. Narrow INC (i.e., INC-C and INC-S), in comparison to broad INC, showed greater specificity to OC symptoms. That is, narrow INC tended to have stronger correlations with OC symptoms than with measures of general distress, whereas the opposite pattern was found for broad INC.

General Discussion

The findings refute the conjecture that INC and HA are orthogonal constructs and, in aggregate, do not provide persuasive evidence that INC is specific to compulsions or that HA is specific to obsessions. However, the findings do show that INC is more strongly correlated with OC symptoms than with general distress, and that INC predicts OC symptoms even after controlling for HA or OC-related dysfunctional beliefs. Narrowly defined INC, compared to broad INC, was more specific to OC symptoms in that narrow INC was more strongly correlated with OC symptoms than with general distress, whereas the opposite was found for broad INC. In other words, narrow INC is more useful for understanding OC symptoms because broad INC fails to explain why incompleteness would lead to OC symptoms instead of symptoms of general distress.

INC-S was more strongly correlated with HA than with INC-C. The reasons for this finding await further investigation, although there is reason to believe that method variance played a role. Methodological research on scale construction shows that response format can substantially influence correlations among self-report measures (Schwarz, 1999). Method variance between items or scales is increased when items have the same type of wording, response instructions, response format, and whether items of a given scale are intermixed with items of other scales (as in the INC-S and HA scales) as compared to when the items are presented in their own separate scale (as in the INC-C) (Megargee, 1972; Schwarz, 1999). Research reviewed by Schwarz (1999) and others suggests that the effects of shared method variance may be even greater than originally envisioned by Campbell and Fiske (1959) in their seminal discussion of the topic. It is therefore entirely possible that shared method variance substantially or entirely explains the stronger correlation of INC-S with HA compared to the correlation of INC-S with INC-C. The issue of method variance also provides a rationale for studying the correlates of INC-S and INC-C separately, to determine if the two scales differ in their patterns of results.

To our knowledge, ours is the first study to investigate how INC, in either broad or narrow conceptualizations, is associated with OC symptoms and general distress. The present studies were limited to self-report measures of INC and HA, using correlational designs, based mostly on nonclinical samples. Although OC symptoms in clinical and nonclinical samples show many similarities (e.g., Clark, 2004), our findings warrant replication with OCD samples. Self-report methods are currently the gold standards for measuring INC and HA, but it remains to be seen whether psychometrically superior interview measures can be developed. Future research involving experimental laboratory measures may clarify the ways in which INC and HA are causally related to OC symptoms. Currently, the research literature is insufficiently developed to make treatment-related predictions concerning INC. A better understanding of the mechanisms underlying INC is required in order to specify and evaluate any treatment-related predictions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Study 1: Meta-analysis of correlations of INC and HA with OC symptoms and general distress. Correlations are arranged in order of magnitude.

Criterion variable	Domain of dependent variable	Dependent variable	Mean *r*
INC-S			
	Compulsions	Ordering	.64
	Compulsions	Checking	.51
	Compulsions	Neutralizing	.48
	Obsessions	Obsessing	.41
	Hoarding	Hoarding	.39
	Compulsions	Washing	.39
	General distress	Depression	.39
	General distress	General anxiety	.31
INC-C			
	Compulsions	Ordering	.43
	Compulsions	Checking	.39
	Compulsions	Washing	.36
	Hoarding	Hoarding	.35
	Obsessions	Obsessing	.33
	General distress	General anxiety	.33
	Compulsions	Neutralizing	.30
	General distress	Depression	.26
HA			
	Obsessions	Obsessing	.57
	Compulsions	Checking	.48
	Compulsions	Neutralizing	.45
	Compulsions	Washing	.39
	General distress	General anxiety	.39
	General distress	Depression	.38
	Compulsions	Ordering	.35
	Hoarding	Hoarding	.33

All *p*s < .001. INC = incompleteness. INC-C=Not Just Right Experiences Questionnaire-Revised. INC-S= Obsessive-Compulsive Core Dimensions Questionnaire - Trait Version. HA = harm avoidance. OC = obsessive-compulsive.

Table 2

Study 2: Correlations of INC and HA with OC symptoms and negative emotionality, after partialling out either HA or OC-related dysfunctional beliefs.

	HA	OBQ-ICT	OBQ-PC	OBQ-RT	HA partialled out			OBQ partialled out		
					INC-C	INC-S	INC-Broad	INC-C	INC-S	INC-Broad
Checking	.60***	.50***	.51***	.51***	.29***	.16***	.21***	.36***	.38***	.31***
Hoarding	.56***	.42***	.43***	.46***	.26***	.11**	.23***	.34***	.36***	.34***
Neutralizing	.61***	.53***	.52***	.53***	.28***	.14***	.20***	.34***	.36***	.29***
Obsessing	.65***	.52***	.48***	.51***	.19***	.09	.30***	.28***	.42***	.43***
Ordering	.51***	.45***	.56***	.48***	.28***	.36***	.15***	.30***	.34***	.19***
Washing	.61***	.49***	.53***	.50***	.28***	.20***	.23***	.35***	.40***	.33***
Negative emotionality	.51***	.27***	.29***	.34***	.08	−.06	.29***	.20***	.32***	.45***

* $p < .01$,

** $p < .005$,

*** $p < .001$.

Unpartialled correlations appear in Appendix A. HA = Harm Avoidance. OBQ-ICT = Obsessive Beliefs Questionnaire-Importance and control of thoughts. OBQ-PC = Obsessive Beliefs Questionnaire-Perfectionism and Intolerance of Uncertainty. OBQ-RT = Obsessive Beliefs Questionnaire-Responsibility and Overestimation of Threat. INC-C = Not Just Right Experiences Questionnaire-Revised. INC-S = Obsessive-Compulsive Core Dimensions Questionnaire - Trait Version. INC-Broad is a composite of INC-C, INC-S, alexithymia-difficulty describing feelings, alexithymia-difficulty identifying feelings, depersonalization/derealization, and impaired psychological mindedness.

Table 3

Study 2: Differences between correlations of INC with OC symptoms and negative emotionality

	HA partialled out			OBQ partialled out		
	INC-C	**INC-S**	**INC-Broad**	**INC-C**	**INC-S**	**INC-Broad**
OC symptoms (mean *r*)	.26	.18	.22	.33	.38	.32
Negative emotionality	.08	−.06	.29	.20	.32	.45
Prototypic compulsions (mean *r*)	.28	.22	.20	.34	.37	.28
Obsessions	.19	.09	.30	.28	.42	.43
Difference between correlations (*Z*): OC symptoms vs. negative emotionality	7.01^{***}	8.98^{***}	-2.75^{*}	5.03^{***}	2.31	-5.63^{***}
Difference between correlations (*Z*): Prototypic compulsions vs. obsessions	2.60^{*}	3.50^{***}	-2.93^{**}	1.67	−1.51	-4.48^{***}

$^{*}p < .01$,

$^{**}p < .005$,

$^{***}p < .001$.

Prototypic compulsions include all compulsions except for hoarding.